MANAGEMENT ACCOUNTING 2

SAMPLE EXAMINATION PAPER 1

Time Allowed: 3 hours

Question 1: Relevant Costs - Make vs Buy (30 marks)

Robber Co manufactures control panels for burglar alarms. It currently produces and sells 90,000 units per annum. Each control panel includes two main components – one key pad and one display screen. At present, Robber Co manufactures both components in-house.

The company is considering outsourcing production. A supplier has offered to supply keypads for $4.50 per unit and display screens for $4.80 per unit, with this price guaranteed for two years.

Current annual costs:

Production cost	**Keypads (90,000 units)**	**Display screens (90,000 units)**
	$'000	$'000
Direct materials	180	130
Direct labour	45	68
Machine costs	29	34
Depreciation and insurance	95	108

Notes:

1. Materials costs for keypads will increase by 6% in six months; display screens by 3% immediately.
2. Direct labour costs are purely variable.
3. Machine costs are semi-variable. Keypads' machine has fixed costs of $5,000 p.a.; display screens' machine $7,000 p.a. Components currently made in batches of 600, but will change to batches of 450.
4. 65% of depreciation/insurance relates to general factory apportionment; 35% is specific to these components.

Required:

(a) Explain the concept of relevant costing and identify FOUR characteristics of relevant costs. (8 marks)

(b) Calculate whether Robber Co should make or buy keypads and display screens. (17 marks)

(c) Discuss THREE non-financial factors for the outsourcing decision. (5 marks)

Question 2: Variance Analysis - Material Mix and Yield (30 marks)

Part A: Mix and Yield (20 marks)

Choc Co manufactures 'Ooze' biscuits containing three sweeteners. Standard for one unit (one packet):

Material	Standard	Price
Honey	20 grams	$0.02 per gram
Sugar	15 grams	$0.03 per gram
Syrup	10 grams	$0.025 per gram

In three months ended 30 November, Choc Co produced 101,000 units using:

- 2,200 kg of honey
- 1,400 kg of sugar
- 1,050 kg of syrup

(Note: 1,000 grams = 1 kg)

Required: Calculate (i) Total materials usage variance; (ii) Total materials mix variance; (iii) Total materials yield variance. (20 marks)

Part B: Basic Variance (10 marks)

Standard cost card shows Materials: 2kg at $5/kg = $10 per unit

Budgeted production: 19,000 units
Actual: 18,000 units produced and sold

- 40,000kg wood bought for $196,000
- No inventory held

Required: Calculate material price and usage variances. (10 marks)

Question 3: Pricing Decisions (30 marks)

ALG Co is launching a new innovative product with expected life of three years. Market research shows at price of $70, annual demand would be 250,000 units. For every $2 increase in price, demand falls by 1,500

units. For every $2 decrease, demand increases by 1,500 units.

Annual production costs forecast:

Annual production (units)	**200,000**	**250,000**	**300,000**	**350,000**
	$	$	$	$
Direct material	2,400,000	3,000,000	3,600,000	4,200,000
Direct labour	1,200,000	1,500,000	1,800,000	2,100,000
Overheads	1,320,000	1,550,000	1,700,000	1,680,000

Required:

(a) Calculate total variable cost per unit and total fixed overheads. (5 marks)

(b) If entity applies marginal cost plus with 30% markup, determine selling price. (2 marks)

(c) If entity applies full cost plus with 20% margin, determine selling price. (5 marks)

Entity uses absorption costing based on units produced.

(d) Calculate optimum selling price and resulting profit. (10 marks)

Note: If P = a – bx then MR = a – 2bx

(e) Discuss TWO conditions for market skimming and recommend whether ALG should adopt this approach. (8 marks)

Question 4: Throughput Accounting (10 marks)

Yam Co processes sheet metal into products A, B and C using pressing, stretching and rolling. The factory has 50 production lines.

Processing time per metre (hours):

	Product A	**Product B**	**Product C**
Pressing	0.50	0.50	0.40
Stretching	0.25	0.40	0.25
Rolling	0.40	0.25	0.25

Factory operates 18 hours/day, 6 days/week, 50 weeks/year (closed 2 weeks for maintenance). One hour labour needed per factory hour. Labour paid $10/hour.

Raw materials cost per metre: Product A $3.00, Product B $2.50, Product C $1.80
Other factory costs: $18,000,000 per year
Selling prices per metre: Product A $70, Product B $60, Product C $27

Yam carries very little inventory.

Required:

(a) Identify the bottleneck process and explain why it's called a 'bottleneck'. (3 marks)

(b) Calculate throughput accounting ratio (TPAR) for each product assuming bottleneck is fully utilised. (7 marks)

END OF PAPER 1

SAMPLE EXAMINATION PAPER 2

Time Allowed: 3 hours

Question 1: Relevant Costs - Shutdown Decision (30 marks)

Bits and Pieces (B&P) operates a retail store selling car spares and accessories. Store currently opens six days per week for 50 working weeks. B&P is considering opening on Sundays.

Current Monday-Saturday:

- Average sales: $10,000 per day
- Average gross profit: 70%

Sunday expectations:

- Gross profit %: 20 percentage points lower than weekday average
- Sales revenue: 60% more than average daily sales (new customers only)

Additional information:

- Supplier gives 5% discount if annual spend exceeds $1,000,000
- Sales assistants: 5 needed for 6 hours on Sunday, paid time and a half (normal rate $20/hour). They take 4 hours off during the week.

- Manager (salary $80,000 p.a.) works Sunday, takes equivalent time off during week. Gets 1% bonus on extra Sunday sales.
- Lighting: $30/hour
- Heating: $45/hour (comes on 2 hours before opening in 25 'winter' weeks)
- Rent: $420,000 per annum

Required:

(a) Calculate whether Sunday opening incremental revenue exceeds incremental costs over a year and conclude if financially justifiable. (20 marks)

(b) Discuss whether manager's pay deal is likely to motivate him. (5 marks)

(c) Discuss whether offering substantial Sunday discounts is a good suggestion. (5 marks)

Question 2: Variance Analysis - Planning and Operating (30 marks)

Marcus manages production and sales for product MN at Grayshott Co.

Budget vs Actual for last quarter:

	Budget	**Actual**
Sales volume (units)	40,000	38,000
Revenue (per unit)	$65	$63
Material (5.2 kg at $4/kg)	$(832,000)	$(836,000)
Labour (2 hours at $8/hour)	$(640,000)	$(798,000)

No opening/closing inventory. Marginal costing system.

Marcus believes adverse results due to circumstances beyond his control:

1. Board increased wages by 25% due to large one-off customer order
2. Alternative supplier charges 6% more per kg (actual $4.40/kg) due to key supplier closure
3. Market demand 10% lower due to economic conditions

Required:

(a) Calculate market share variance. (5 marks)

(b) Calculate materials price planning variance. (5 marks)

(c) Calculate labour rate operational variance. (5 marks)

(d) Explain reasons for labour efficiency planning variance. (5 marks)

(e) Discuss problems of introducing planning and operational variances. (10 marks)

Question 3: Life Cycle Costing (30 marks)

Fit Co manufactures hi-tech fitness products. Considering new fitness monitor - first of its kind. Takes one year to develop, sales begin year 2, life cycle of two years.

Cost estimates:

	Year 1	**Year 2**	**Year 3**
Units manufactured/sold	-	100,000	200,000
R&D costs	$160,000	-	-
Product design	$800,000	-	-
Marketing	$1,200,000	$1,000,000	$1,750,000
Variable mfg cost/unit	-	$40	$42
Fixed production costs	-	$650,000	$1,290,000
Variable dist. cost/unit	-	$4	$4.50
Fixed distribution	-	$120,000	$120,000
Variable selling cost/unit	-	$3	$3.20
Fixed selling costs	-	$180,000	$180,000
Administration	$200,000	$900,000	$1,500,000

Required:

(a) Calculate life cycle cost per unit. (20 marks)

(b) Discuss THREE benefits of life cycle costing. (10 marks)

Question 4: Target Costing (10 marks)

Big Cheese Chairs (BCC) manufactures executive leather chairs. Considering new massaging chair design.

Market investigation using target costing: competitive selling price $120. BCC wants 20% margin on selling price (ignoring overheads).

- Frame and massage mechanism bought in: $51 per chair
- Leather: $10 per metre, 2 metres needed, 20% wasted in upholstery
- Labour: 2 hours at $15/hour

Required:

(a) Calculate expected cost and identify any cost gap. (5 marks)

(b) Suggest FOUR ways the cost gap could be closed. (5 marks)

END OF PAPER 2

SAMPLE EXAMINATION PAPER 3

Time Allowed: 3 hours

Question 1: Relevant Costs - Shutdown Decision (30 marks)

Stay Clean manufactures dishwashers (DW), washing machines (WM) and tumble dryers (TD). TD has old design generating negative contribution. Market expected to cease in one year when new combined washer/dryer ready.

Deciding whether to cease TD production now or in 12 months:

Product	DW	WM	TD
Selling price per unit	$130	$250	$30
Labour cost per unit	$50	$80	$40
Contribution per unit	$80	$170	$(10)
Annual sales	5,000	6,000	1,200

Additional information:

1. 5% of WM and DW sales will be lost if TD ceases

2. Immediate redundancy costs: $6,000. If wait 12 months: retraining $3,500. Future recruitment/training if redundancy now: $1,200
3. Factory space can be sublet for $12,000 if TD stops now
4. Supervisor spends 20% time on TD, continues full employment regardless

Required:

(a) Calculate whether worthwhile ceasing TD now rather than waiting 12 months. (20 marks)

(b) Describe THREE issues for outsourcing future products. (10 marks)

Question 2: Variance Analysis - Planning and Operating (30 marks)

Secure Net (SN) manufactures security cards. Standard plastic cost: $4 per kg, each card uses 40g after waste allowance. November: 100,000 cards produced/sold (budget: 60,000).

Actual plastic cost: $5.25/kg. Production manager explains: "World oil prices pushed plastic up 20%. Used different supplier for better quality/reliability at slightly higher price."

Actual usage: 35g per card. Manager explains: "World standard card size increased 5% due to technology change, but new supplier's better quality reduced waste."

SN operates JIT (just in time) system.

Required:

(a) Calculate total material price and usage variances ignoring planning errors. (8 marks)

(b) Analyse into planning and operational variances in detail. (17 marks)

(c) Assess production manager's performance. (5 marks)

Question 3: Pricing Decisions (30 marks)

TR Co manufactures pharmaceutical drugs including 'Parapain' pain relief. Patent expired last month - competitors entered market with similar versions.

Reviewing pricing policy. Market research: for every $2 decrease in price, demand increases 5,000 batches. Maximum demand: 1 million batches.

Each batch costs:

- Material Z: 500 grams at $0.10/gram
- Material Y: 300 grams at $0.50/gram
- Machine time: 20 minutes, variable running cost $6/hour

- Fixed production overhead: $2/batch (based on 250,000 batches)

Skilled workers moving to new anti-malaria drug production (revolutionary, patented, millions spent developing, eagerly anticipated worldwide).

Required:

(a) If entity applies marginal cost plus with 25% markup, determine selling price. (3 marks)

(b) If entity applies full cost plus with 25% margin, determine selling price. (3 marks)

(c) Calculate optimum selling price for Parapain and resulting annual profit. (16 marks)

Note: If P = a – bQ, then MR = a – 2bQ

(d) Discuss and recommend whether penetration or skimming suitable for anti-malaria drug launch. (8 marks)

Question 4: Throughput Accounting (10 marks)

Solar Systems Co makes large panels (commercial) and small panels (domestic). Production: 5 days/week, 7am-8pm (13 hours), 50 weeks/year.

Government scheme: guaranteed no price increase for 3 years. Must supply minimum 1,000 small panels/year.

	Large panels ($)	**Small panels ($)**
Selling price	12,600	3,800
Material costs	4,300	1,160

Total factory costs: $12 million/year

Of 13 hours: 1 hour lunch break. Remaining 12 hours: Machine C utilised 85%, Machines M and A utilised 90%.

Machine M (bottleneck):

	Large panels (Hours)	**Small panels (Hours)**
Machine M	1.4	0.6

Maximum annual demand: 1,800 large panels, 1,700 small panels

Required:

(a) Calculate TPAR for both products and explain what they indicate. (6 marks)

(b) Determine optimum production mix and maximum profit. (4 marks)

END OF PAPER 3

SAMPLE EXAMINATION PAPER 4

Time Allowed: 3 hours

Question 1: Variance Analysis - Planning and Operating (30 marks)

Truffle Co makes hand-made chocolate truffles in batches of 16. Standard labour cost per batch: $6.00, standard time: 0.5 hour.

November budgeted: 24,000 batches. Actual: 20,500 batches. 12,000 labour hours used, no idle time. Total labour cost: $136,800.

End of October: managing director offered staff 5% pay cut or redundancies. All accepted 5% cut (immediate effect).

Retailer requested softer truffles. Change implemented immediately - made chocolates harder to shape, process 20% slower for at least first month.

Standard costing updated only once yearly in June.

Required:

(a) Calculate total labour rate and efficiency variances for November. (8 marks)

(b) Analyse into planning and operational variances in detail. (17 marks)

(c) Assess production manager's performance for November. (5 marks)

Question 2: Variance Analysis - Planning and Operating (Materials) (30 marks)

Bedco manufactures bed sheets and pillowcases for hotel chain. Standard cotton cost: $5/m². Each bed sheet uses 2 m², each pillowcase 0.5 m².

November production:

	Budgeted	Actual
Bed sheets	120,000	120,000
Pillowcases	190,000	180,000

Actual cotton cost: $5.80/m². Used: 248,000 m² (bed sheets), 95,000 m² (pillowcases).

World cotton prices increased 20% in November. Hotel chain requested unexpected immediate pillowcase design change requiring 10% more cotton, causing production delays - 10,000 pillowcase shortfall.

Production manager responsible for buying and production issues, not standard setting.

Required:

(a) Calculate for both products and total: (i) Material price planning variance; (ii) Material price operational variance; (iii) Material usage planning variance; (iv) Material usage operational variance. (24 marks)

(b) Assess production manager's performance for November. (6 marks)

Question 3: Life Cycle Costing (30 marks)

Product lifecycle costs over three years:

	Year 0	Year 1	Year 2	Year 3
Units made/sold	-	25,000	100,000	75,000
R&D costs	$850,000	$90,000	-	-
Variable prod/unit	-	$30	$25	$20
Fixed production	-	$500,000	$500,000	$500,000
Variable selling/dist/unit	-	$6	$5	$4
Fixed selling/dist	-	$700,000	$500,000	$300,000
Variable customer service/unit	-	$4	$3	$2

Required:

(a) Calculate expected average life cycle cost per unit. (15 marks)

(b) Identify maturity phase year and explain. (5 marks)

(c) Explain why variable production costs reduce over years. (5 marks)

(d) Explain customer service costs and why they reduce over years. (5 marks)

Question 4: Target Costing (10 marks)

Edward Co assembles radios, extending to digital radios. Target costing approach.

Selling price: $44 (to compete). Acceptable margin: 20% (after production costs).

Costs:

- Component 1 (Circuit board): $4.10 each, batches of 4,000, delivery $2,400/batch
- Component 2 (Wiring): needs 25 cm/radio, but 2% waste. Wire $0.50/metre
- Other materials: $8.10/radio
- Assembly labour: 30 minutes, $12.60/hour, 10% idle time
- Production overheads: historic data shows Month 1: $620,000 (19,000 hours), Month 2: $700,000 (23,000 hours). Fixed overheads absorbed on assembly hours based on normal annual 240,000 hours.

Required:

Calculate expected cost per unit and identify any cost gap. (10 marks)

END OF PAPER 4

SAMPLE EXAMINATION PAPER 5

Time Allowed: 3 hours

Question 1: Variance Analysis - Planning and Operating (30 marks)

School Uniform Company (SU Co) manufactures uniforms. Contract with Girls' Private School Trust (35 schools, same uniform).

Spring/summer dress redesigned with dropped waistband. Each new dress needs 2.2 metres material (10% more than old style). New material $2.85/metre (5% cheaper than old).

February: 54,560 metres material used and purchased.

New sewing technique needed - staff required training. Manager expected 10 minutes/dress (old: 8 minutes). 24 staff, each works 160 hours/month, paid $12/hour. All worked contracted hours on dresses, no idle time. No

labour rate variance.

Activity levels February:

- Budgeted production/sales: 30,000 units
- Actual production/sales: 24,000 units

Production manager responsible for purchasing/production. Standard cost card normally updated before design changes, but accountant sick 2 months - not updated.

Required:

(a) Calculate material variances in detail for February. (12 marks)

(b) Calculate labour efficiency variances in detail for February. (12 marks)

(c) Assess production manager's performance for February. (6 marks)

Question 2: Variance Analysis - Market Size and Share (30 marks)

Spike Co produces leather bound diaries. Market shrinking as electronic versions become popular.

Budget for year to date:

- Sales volume: 180,000 units
- Sales price: $17.00/unit
- Standard contribution: $7.00/unit
- Total market estimate: 1.8m units

Actual results:

- Total market: 1.6m units (shrank)
- Sales volume: 176,000 units
- Sales price: $16.40/unit

Required:

(a) Calculate total sales price and sales volume variance. (10 marks)

(b) Analyse sales volume variance into market size and market share components. (12 marks)

(c) Comment on sales performance. (8 marks)

Question 3: Variance Analysis - Sales Mix and Quantity (30 marks)

Block Co operates marginal costing, sells Commodity 1, 2, 3. Struggling with recession.

Quarterly consultant sets budgeted sales price (becomes 'standard'). Sales manager negotiates actual prices.

Budget quarter ended 31 May 2013:

Product	Budgeted units	Standard price	Standard variable cost
Commodity 1	30,000	$30	$18
Commodity 2	28,000	$35	$28.40
Commodity 3	26,000	$41.60	$26.40

Actual quarter ended 31 May 2013:

Product	Actual units	Actual price	Average market price
Commodity 1	29,800	$31	$32.20
Commodity 2	30,400	$34	$33.15
Commodity 3	25,600	$40.40	$39.10

Required:

(a) Calculate sales price operational and planning variances. (12 marks)

(b) Calculate total sales mix and quantity variances. (12 marks)

(c) Explain THREE reasons for sales price planning variance. (6 marks)

Question 4: Variance Analysis - Material Mix and Yield (10 marks)

Organic Bread Company (OBC) makes breads. Workers weigh ingredients, machine mixes, manual shaping, oven baking, quality inspection. Failed loaves donated to food bank.

Standard cost for 'Mixed Bloomer':

Material	Amount	Price
White flour	450 grams	$1.80/kg
Wholegrain flour	150 grams	$2.20/kg
Yeast	10 grams	$20/kg
Total	**610 grams**	

Budgeted production: 1,000 units. Actual: 950 units.

Actual quantities/costs:

Material	Kg	$/kg
White flour	408.5	1.9
Wholegrain flour	152	2.1
Yeast	10	20
Total	**570.5**	

Required:

(a) Calculate total material mix and yield variances. (6 marks)

(b) Suggest THREE reasons for ADVERSE yield variance at OBC. (4 marks)

END OF PAPER 5

SAMPLE EXAMINATION PAPER 6

Time Allowed: 3 hours

Question 1: Variance Analysis - Material Mix and Yield (30 marks)

Kappa Co produces Omega animal feed by mixing/heating Alpha, Beta, Gamma.

Standard for 100 kg Omega:

Input	Kg	Cost/kg ($)	Cost/100kg ($)
Alpha	40	2	80
Beta	60	5	300
Gamma	20	1	20
Total	**120**		**400**

Notes:

1. Mixing/heating has standard evaporation loss
2. Alpha, Beta, Gamma are agricultural - quality/price vary significantly. Standards set at 5-year average market price. Purchasing manager responsible for pricing/contracts.
3. Standard mix set by finance 5 years ago at product launch - unchanged since.

Last month: 4,600 kg Omega produced using:

Input	Kg	Cost/kg ($)	Total cost ($)
Alpha	2,200	1.8	3,960
Beta	2,500	6	15,000
Gamma	920	1	920
Total	**5,620**		**19,880**

Monthly: production manager gets standard cost statement with price/usage variances, labour rate/efficiency variances, overhead variances. No commentary, no other feedback on Omega process efficiency.

Required:

(a) Calculate: (i) material usage variance for each ingredient and total; (ii) total material mix variance; (iii) total material yield variance. (24 marks)

(b) Assess whether standard costing system provides useful information to production manager. (6 marks)

Question 2: Life Cycle Costing (30 marks)

Volt Co generates/sells electricity. Operates nuclear and wind power stations.

Nuclear station:

- Generates 9,000 gigawatts/year for 40 years
- Operating costs: $486m/year (includes depreciation $175m/year to recover $7,000m building cost)
- Decommissioning cost: $12,000m at end of life

Wind station:

- Generates 1,750 gigawatts/year
- Life-cycle cost: $55,000/gigawatt
- Average operating cost: $40,000/gigawatt over 20-year life
- Decommissioning cost: $100m

Required:

(a) Calculate life-cycle cost per gigawatt of nuclear station (nearest $'000). (8 marks)

(b) Determine total investment of wind station. (6 marks)

(c) If Volt Co sets price to earn 40% operating margin over wind station life, calculate total lifetime profit per station (nearest $m). (8 marks)

(d) Explain THREE benefits of life-cycle costing for Volt Co. (8 marks)

Question 3: Pricing Decisions (30 marks)

Heat Co produces air conditioning for industrial premises. Launching 'Energy Buster' - unique unit with unprecedented air conditioning using minimal electricity.

Technology patented - no competitors for 2 years. High development costs. Expected 5-year life cycle.

Demand very price-responsive. Research: every $15 price increase, demand falls 1,000 units. At $735, only 1,000 units demanded.

Production costs per unit:

Cost	$	Note
Direct materials	42	
Labour	12	(1.5 hours at $8/hour)
Fixed overheads	6	(based on 50,000 units p.a.)
Total	**60**	

All other costs same up to maximum demand.

Required:

(a) Establish demand function for air conditioning units. (4 marks)

(b) Calculate marginal cost per unit after adjusting labour as required. (3 marks)

(c) Equate marginal cost and marginal revenue to calculate optimum price and quantity. (15 marks)

Note: If P = a – bx then MR = a – 2bx

(d) Explain 'penetration pricing' and 'market skimming' and discuss suitability for Energy Buster launch. (8 marks)

Question 4: Throughput Accounting (10 marks)

Yam Co processes sheet metal into A, B, C using pressing, stretching, rolling. 50 production lines.

Processing time per metre (hours):

	Product A	**Product B**	**Product C**
Pressing	0.50	0.50	0.40
Stretching	0.25	0.40	0.25
Rolling	0.40	0.25	0.25

Factory: 18 hours/day, 6 days/week, 50 weeks/year. One labour hour per factory hour. Labour $10/hour.

Raw materials/metre: A $3.00, B $2.50, C $1.80
Other factory costs: $18,000,000/year
Selling prices/metre: A $70, B $60, C $27

Maximum demand: 20,000 units each product.

Required:

(a) Identify bottleneck and explain why. (2 marks)

(b) Calculate TPAR for each product (bottleneck fully utilised). (5 marks)

(c) Determine optimal production plan and maximum profit. (3 marks)

END OF PAPER 6